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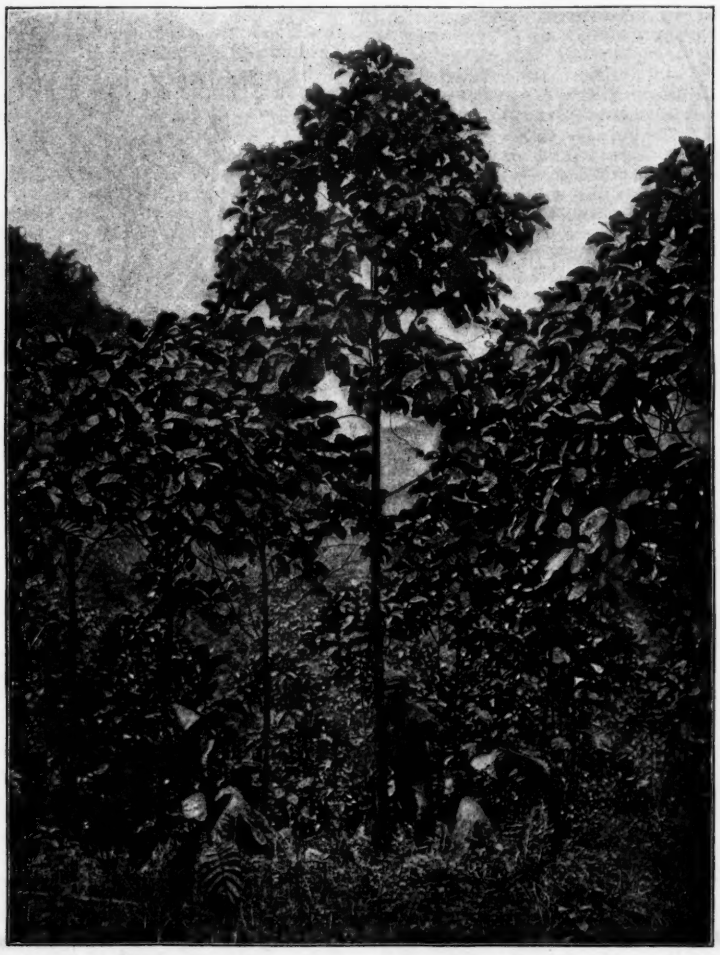
JAVA AND THE JAVANESE.

(Continued from p. 280.)

THE celebrated botanical garden at Buitenzorg was founded in 1817 by Baron von Kapellen, then Governor of Java. Both art and nature have united to produce one of the most lovely and magnificent parks existing in any country. Every kind of plant or tree which is found in the tropics and is worthy of cultivation for its beauty, shade, economic value, or for purposes of study, is to be found there, not under protecting glass houses, but in the open air, the extent of the gardens and the availability of hill or valley affording every required condition of soil, moisture, sunlight, or shade most favorable for the welfare of each. At the very entrance is a group of lofty tamarinds. A little further on are small bosquets of nutmeg and clove trees, also a variety of different cinnamon trees. Every conceivable kind of tropical fruit tree, including the date palm, and more than fifty varieties of bananas are represented. The collection of palms is the richest anywhere collected in one place. Over two hundred species are represented. Curiously enough, some varieties of oak, notably *Quercus pruinosa*, which usually grow on Java only at heights of between 4,000 and 5,000 feet, flourish in the shade of high palms in favored localities. Considerable tracts are devoted to various species of cotton (*Gossypium*), tea, coffee, pepper, and various medicinal plants and trees. Among the "creepers" is an enormous liana which, when described some years since, was said to wind in circles about the ground and then go over a palm tree and down again, upwards of 300 feet long, 70 yards alone being on the ground. The most important service which the gardens have rendered to mankind is, no doubt, the introduction and propagation of the cinchona tree in Java. This was first attempted in 1852, when the Dutch minister of the colonies, Mr. Pahud, sent Mr. Justus Charles Hasskarl, then in charge of the Buitenzorg gardens, to Peru, with the commission to procure suitable seedlings and fruits or seeds. The botany of the genus cinchona was, at that time, not so well understood as it is now, and Hasskarl was misled by representations of the natives to collect at first the seeds of a variety which was later on known as *Cinchona Pahudiana*, but which turned out to be worthless as a source of alkaloids. Being compelled to remain until 1854, he finally succeeded, under an assumed name, and far in the interior, at the little village of Sina in the province of Carabaya, in obtaining 400 young calisaya plants, which he shipped from Islay in a sailing vessel direct to Java. The plants had been put in Wardian cases, but, in spite of this, all but *two* of them subsequently died at the Buitenzorg gardens. Hasskarl was now put in charge of the cultivation of cinchona, and founded the first plantation at Tjibodas, thirty miles south of Batavia, at an altitude of 4,400 feet. The soil, however, proved

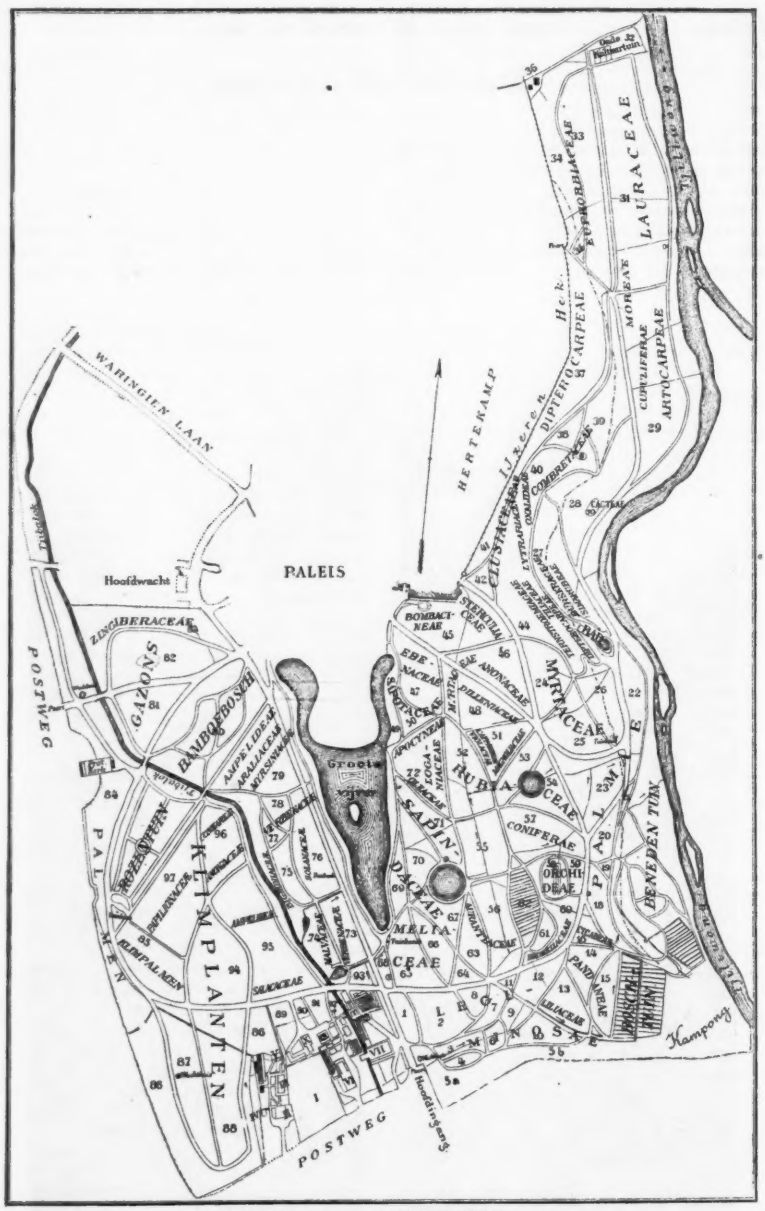


Group of Cultivated Cinchonas in Java.*

* From "Die natürlichen Pflanzenfamilien," etc., by A. Engler and K. Prantl. Leipzig, 1891.

unsuitable, and the experiment was a failure. A fresh supply of cinchona trees was brought by Junghuhn in 1855, and the latter was entrusted with the supervision of the industry, being joined by Dr. de Vrij as chemical expert. The whole establishment was reorganized by them in 1856, particular care being taken to watch the influence of soil and treatment upon the quantity of alkaloids, and to select only the most promising plants for propagation. On transplanting the unpromising young trees from Tjibodas to a more favorable locality, the trees began to acquire vigor, and finally bore flower and fruit. It was now found that the species which had been cultivated was utterly valueless and that the whole experiment was to be commenced again from the beginning. Nearly a million trees of the worthless species had been planted, and only a small number of genuine calisaya trees were available. Nevertheless the courage of the officials in charge did not flag, and the plantations were gradually stripped of the "Pahudiana" species. In 1865 a supply of genuine calisaya seeds, collected in Bolivia for Mr. Ledger, was put up for sale in London, and half of them sold to the Dutch Government for the Java plantations, the other half being purchased for the British Indian stations. This supply of seeds has proved to be the richest mine ever struck. Not only did the seeds propagate well and without difficulty, but the plant and tree raised from them turned out to be a separate variety of calisaya, subsequently named *Cinchona Ledgeriana*, and to be the richest in alkaloids of all species then known. By careful selection and cultivation it has been brought to such a condition, particularly upon Java, where it is cultivated with preference, that it usually contains from 6 to 8 per cent, and even up to 10 and more per cent, of alkaloids, and always brings the highest price in the bark market.

(To be continued.)



Map of the Buitenzorg Botanical Garden.

On Gaseous Compounds of Nickel and Iron.

THE highly interesting discovery made some time ago regarding the existence of a *gaseous* compound of carbon monoxide (carbonic oxide) and nickel, has recently been supplemented by the discovery of a similar compound with iron. This latter discovery has already opened up a wide field of speculation and research, being held to furnish the key to many heretofore dark processes and reactions involved in the metallurgy of iron and steel. In view of the high interest attaching to these gaseous compounds, we give an account of their discovery and properties from a paper by Mr. Ludwig Mond, who discovered and studied these compounds in conjunction with his assistants, Drs. Langer and Quincke:

"A very small quantity of nickel can effect the dissociation of a large quantity of carbonic oxide, and becomes converted into a very voluminous black mass containing varying quantities of carbon up to 85 per cent. This mass takes fire on exposure to air, so that we had to cool it under exclusion of air for the purpose of analysis, which was done in a slow current of carbonic oxide gas. This gas was subsequently led into a Bunsen burner, so as to keep it out of the atmosphere of the room. In this way we observed that when the cooling had proceeded to a certain point (about 150° C.) the Bunsen flame became luminous and remained so, and even became intenser, down to ordinary atmospheric temperature. When the gas, before entering the burner, was heated in a glass tube, a metallic mirror was obtained, while the luminosity of the flame disappeared. We were at first inclined to refer this phenomenon to the presence in the nickel of an unknown element, perhaps to Kruess and Schmidt's gnomium, which at that time still haunted chemical literature. The metal of the mirror, however, gave all and every one of the reactions of nickel with remarkable brilliancy. . . .

"In repeating the experiment with carbonic oxide quite free from hydrogen and moisture, and only contaminated with nitrogen, the same result was obtained. After removing the carbonic oxide by cuprous chloride, and heating the residual gas to 180° C. in aniline vapor, at which temperature nickel quite free from carbon is separated, we found the volume of the gas to expand considerably, and the gas to contain only nitrogen and carbonic oxide. It was thus evident that we had obtained a volatile compound of nickel and carbonic oxide, which, on heating, dissociated into its constituents. The increase of volume proved that one volume of gas yielded four volumes of carbonic oxide, and the determination of the amount of nickel deposited and the carbonic oxide formed led to a proportion of four equivalents of carbonic oxide to one of nickel. To further study the properties of this compound, it was necessary to produce larger quantities, which took us a long time to accomplish. By preparing the nickel in a very fine state of division, at the lowest possible temperature, by reducing the oxide, or, better still, the oxalate, in a current of hydrogen at about 400° C., and by carefully purifying and regulating the current of carbonic oxide, we succeeded at last in forming the compound quite readily, and in obtaining a gas sufficiently rich that on passing it through a refrigerator, cooled by ice and salt, we condensed the compound to a liquid.

"This liquid is colorless, mobile, highly refracting, possesses a characteristic odor, and is very volatile. It is soluble in a large number of organic liquids, such as alcohol, ether, chloroform, benzole, petroleum, tar oils, etc. It boils at 43° C. at 751 Mm. pressure without decomposition, and evaporates rapidly at ordinary temperature in a current of other gases. The specific gravity is 1.3185 at 17° C.; at —25° it solidifies, forming needle-shaped crystals; the pure vapor explodes when suddenly heated above 60°, and even when the tube containing it is scratched roughly with a file. A mixture of the vapor with air explodes violently on the application of a flame. Both the liquid and the vapor are poisonous, the latter approximating carbonic oxide in this respect. According to an investigation kindly undertaken by Prof. McKendrick, the liquid dissolved in chloroform produced, when injected subcutaneously in extremely small doses in rabbits, an extraordinary reduction of temperature, amounting in some cases to 12° C.

"Careful determinations of the quantity of nickel contained in the liquid, made by introducing a weighed quantity into chlorine water and precipitation of the nickel from the resulting solution, led to figures agreeing very closely with the formula $Ni(CO)_4$, viz, 34.33 and 34.26 per cent of nickel, the formula requiring 34.28. The vapor density determined by Victor Meyer's method at 50° was found equal to 6.01; the formula $Ni(CO)_4$ requires 5.89. . . .

"The highly interesting properties of nickel carbon oxide naturally led us to try whether we could not obtain similar compounds of other metals. It seemed a foregone conclusion that cobalt, in every respect so much like nickel, must give an analogous compound. It seemed probable that other metals of the eighth group, and those standing near to nickel in other groups, would also combine with carbonic oxide. We tried a large number of elements, including osmium, palladium, ruthenium, rhodium, iridium, and manganese, by acting upon them in the finely divided state with carbonic oxide gas over a wide range of temperature. We tried it by double decomposition with numerous compounds, including zinc ethyl and mercury methyl; but, with one sole and single exception, without success.

"This sole exception is iron. This metal, too, had for a long time given us negative results; but by preparing it at the lowest possible temperature by reduction of the oxalate in a current of hydrogen, and by acting upon this at about 80° C. with a very slow current of very pure carbonic oxide, I succeeded at last, in conjunction with Dr. F. Quincke, in obtaining evidence that a volatile compound of this element with carbonic oxide exists. The gas obtained imparted a yellow tinge to a Bunsen flame, and yielded slight metallic mirrors composed of pure iron. The quantity of the iron compound in the gas was, however, extremely small. By passing the gas through heavy tar oils—in which the compound is soluble, but from which it cannot be separated by fractionation, as it decomposes, on heating the solution, into iron and carbonic oxide before it volatilizes—and by determining the iron and carbonic oxide so obtained, we ascertained, as far as the very small quantities of the substance at our disposal would allow, that it contained iron and carbonic oxide in the proportion of 1 equivalent of iron to 4.126 of carbonic oxide, or very nearly 1 to 4.

"Since these results were communicated to the Chemical Society (18th of June, 1891), I have continued the study of this body, in collaboration with Dr. Carl Langer, and we have arrived at obtaining it as an amber-colored liquid, which, on standing, deposits tabular crystals of a darker color, and solidifies entirely below —21° C. to a mass of needle-shaped crystals. It boils at 102° C., but leaves a small quantity of green-colored oil behind."—After *Chem. News*, August 28th.

Levosin.

THE new carbohydrate which was discovered by Mr. Tanret in several cereals (rye, wheat, barley, etc.), and announced by him in February last, may be obtained by the following process.

Ground rye is exhausted with alcohol of 50 per cent. The alcoholic liquid is mixed with 2 volumes of alcohol of 94 per cent. This causes the precipitation of a notable quantity of gum. The supernatant liquid is decanted and distilled. To the residue left after distillation some baryta solution is added until it no longer causes any other precipitate but such as redissolves immediately. The liquid is filtered, and to the filtered liquid more baryta solution added until a permanent precipitate is obtained. The liquid is cooled, then the precipitate collected on a strainer and washed with cold baryta water, after which it is decomposed by carbonic acid. The barium carbonate is removed, and the filtrate then evaporated, when levosin still containing some barium is left behind. It is dissolved in alcohol of 50 per cent, the solution mixed with the absolutely necessary quantity of diluted sulphuric acid, and the barium sulphate filtered off. The filtrate is then mixed with alcohol of 95 per cent, which throws the levosin down. This is separated, redissolved in water, the solution filtered, and the filtrate evaporated, when pure levosin is left behind.

Levosin is a white, amorphous, almost tasteless substance, soluble in water in all proportions, very soluble in weak but less soluble in stronger alcohol.—After *Rép. de Pharm.*

Copaiba as a Diuretic.

PROF. IVAN N. OBOLENSKY, of Kharkov, calls attention to the powerful diuretic properties of copaiba balsam, his own clinical experience being fully in accord with that of many British authorities. Obolensky uses the remedy in the form of an emulsion, the daily dose varying from 20 to 40 grains. The drug was tried in nine cases, among which there were four of mitral insufficiency, one of aortic regurgitation, three of atrophic cirrhosis of the liver, and one of abdominal tumor. His observations showed that: 1. The balsam is far superior to ordinary diuretics, including digitalis, convallaria majalis, adonis vernalis, stigmata maïdis, calomel, and sparteïn; 2. Its diuretic action develops very quickly in cardiac and hepatic cases, the daily amount of the urine rising from 700 or 800 to 1,450 C.c., even about the end of the first twenty-four hours, and increasing up to 2,000 C.c. the next day; (3) the effects are lasting, diuresis (after the same dose) remaining equally abundant for weeks; (4) the best results are observed in cases of dropsy of cardiac or hepatic origin; (5) the balsam occasionally causes heartburn with eructation (one case), slightly increased frequency of micturition (one case), abdominal pain with diarrhœa (one case), and some admixture of red blood corpuscles with the urine (one case). The phenomena, however, are always mild, never making it necessary to stop the administration of the drug.—After Suppl. to *Brit. Med. Journ.* August 8th.

Notes on Chemical Drugs and Chemicals.*

Balsam Copaiba.—Some time ago a considerable quantity of balsam of copaiba was brought into the market from the west coast of Africa, but did not find a purchaser, as it was very dirty and there was no information as to its source. A subsequent examination showed that it was genuine balsam of copaiba, unpurified. Hitherto it has always been supposed that the copaiba tree was found only in South America.

[*Note by Ed. Am. Drugg.*—Several recent explorers in the region south of the Congo, along the Kassai and other streams flowing into the latter, have reported the existence of species of Copaifera.]

Camphor.—Since the territory, in Japan, in which camphor is produced has been gradually extended northward, Hiogo has become the chief place of export. Great carelessness is shown in the manner in which the crude camphor is shipped. While heretofore it suffered a loss of only 5 or 6 per cent in transit, it now loses often more than double that amount. This is chiefly due to the fact that it is brought to market in too damp a condition.

Cinchona.—The shipments of Java bark in 1886-87 amounted to 2,000,000 Dutch pounds, and in 1890-91 not less than 6,630,000. This immense quantity is not likely to be maintained or exceeded for many years to come, since the owners of plantations are gradually abandoning cinchona cultivation, owing to the loss it entails upon them. While cinchona bark ruled at the comparatively high prices which made its cultivation so desirable some twenty or twenty-five years ago, the industry has been so overdone that there is no longer any profit in it.

The Javanese cinchona planters contemplate the erection of a quinine factory in Western Java, where the principal plantations are situated, and base upon the satisfactory results obtained in British India through the manufacture of quinine [only an impure form of quinine is produced there, besides a mixture of cinchona alkaloids, called "febrifuge," formerly "quinetum"]. They expect to find a good market for their product in San Francisco. [See Editorial column.]

Duboisine.—This alkaloid [which is really hyoscyamine, obtained from *Duboisia myoporoides*] has recently been highly lauded as an active sedative and hypnotic in cases of insanity (psychosis with excitement). It is said to have this advantage over hyoscine, that it is "not dangerous" [we would not recommend to trust to this assertion.—Ed. Am. Drugg.]. It is administered hypodermically, as sulphate, in doses of about $\frac{1}{60}$ grain ($\frac{1}{30}$ grain per day).

Euphorine (Phenyl-urethane) has been somewhat more in demand as an analgesic and antirheumatic. The dose is about 7 grains, two, three, or four times daily; best administered in wafers.

Euphorenum is the latest "substitute" for iodoform. It is an isobutyl-orthocresol iodide. It appears as an amorphous, yellow powder, of an aromatic odor, somewhat recalling that of saffron; easily soluble in ether, alcohol, and oils. It is very light specifically, one volume possessing only about one-fifth the weight of an equal volume of iodoform. This is a material advantage when it is to be used in substance. According to observations so far made, it is very efficient in ulcerated legs, syphilitic eruptions, lupus, and burns. It is used externally as dusting powder, or in form of ointment (1 to 10 per cent). Internally it may be given, dissolved in oil, in doses of $\frac{1}{4}$ grain up to $1\frac{1}{2}$ grain.

Iodopyrin.—This new derivative of antipyrin is still merely on trial. Curiously enough, a recent patent claim has been filed in which this substance is proposed to be used for etching metals.

Lanolin and Sulphur.—A patent has recently been granted for a sulphurated lanolin, prepared by heating lanolin with 25 per cent of flowers of sulphur. The object is to produce an ointment containing sulphur in an easily absorbable form.

Phenocoll Hydrochlorate.—This substance, which is closely related to phenacetin, being the hydrochlorate of amidacet-paraphenetidine, has been introduced as a new antipyretic and antineuralgic, but does not seem to make any headway.

Resorcin.—Gehe & Co. state that they have never seen any resorcin which was perfectly neutral, as is demanded by the Pharmacopœia. It always had at least a faint acid reaction. It would seem that the latter is a normal condition.

Sulphonal.—The occasional failure to obtain satisfactory results with this hypnotic is no doubt due to its difficult solubility and an improper method of administration. The best method, according to Stewart, is the following: Dissolve 15 to 30 grains in 4 to 6 fluidounces of boiling water, allow the solution to cool somewhat, and administer it while yet warm, with or without the addition of a little peppermint. The effect appears sooner and the sleep is deeper.

Coto Bark.—Gehe & Co. state that the supplies, in first hands, are nearly exhausted, and that it is not intended for the present to renew them. This shows that there is but little demand for the drug in Germany.

Vanilla.—The vanilla market has become completely revolutionized since the commencement of cultivation upon Réunion (Bourbon). Last year's harvest of the three chief localities in the Indian Ocean was as follows:

Bourbon, about	80,000 kilos.
Mauritius "	15,000 "
Seychelles "	18,000 "
Total, about	113,000 kilos.

These immense quantities, of course, throw the Mexican and other commercial sorts quite in the shade.

Sugar of Milk.—The establishment of numerous new factories has still further depressed the market, and is likely to result in overproduction.

* From Gehe & Co.'s Handelsbericht, September, 1891.

Ephedra Vulgaris as an Antirheumatic.

In a preliminary note in the *Bolnitchnaia Gazeta Botkina*, No. 19, 1891, Dr. P. V. Bekhtin, of Prof. L. V. Popoff's clinic in St. Petersburg, describes a series of therapeutical experiments with the *Ephedra vulgaris*, or "steppe raspberry" (Russ. *Stepnaia malina*), which plant (a member of the natural order *Gretaceæ*, which grows abundantly all over Russia) is regarded by the Russian peasantry as a sovereign remedy for rheumatic and syphilitic affections. The observations were made on sixteen patients, of whom four were suffering from acute articular rheumatism (in one case complicated with pericarditis), two from chronic and two from acute muscular rheumatism, six from chronic and one from rheumatic sciatica, and one from rheumatic osteomyelitis. The remedy was used in the form of an "infuso-decoction" of 1 drachm of powdered stems and roots of the plant and 6 ounces of water, a tablespoonful being given every two hours. The following are the principal conclusions arrived at: 1. The steppe raspberry is decidedly one of the most valuable antirheumatic remedies yet known. 2. The best results are obtained in cases of acute articular and muscular rheumatism. Even on the second day of the treatment pain greatly decreases, and the pulse and respiration become slower while becoming fuller and stronger. In a couple of days the temperature returns permanently to normal and articular swelling completely disappears, and in seven or ten days the patient is quite well. In the complicated case the pericarditis subsided together with the other morbid phenomena. 3. In chronic cases the remedy acts somewhat less rapidly. Of the eight cases, in four (muscular rheumatism) a complete cure was effected, while in the other four (two muscular, two articular) a great improvement was obtained. 4. In rheumatic osteomyelitis and sciatica, however, the remedy seems to produce only slight and temporary amelioration. It may be added that in both the cases all ordinary antirheumatic drugs (salicylate of sodium, antipyrin, antifebrin, salol, phenacetin, etc.) utterly failed to afford any relief. 5. Ephedra invariably has a beneficial effect on the gastro-intestinal tract, habitual constipation disappearing, etc. 6. The remedy also appears to possess a diuretic action, which is especially pronounced in cases of articular rheumatism.—Suppl. to *Brit. Med. Journ.*

Selected Formulas from the German Unofficial Formulary.

THE Pharmacopœia Committee of the German Pharmaceutical Society had been at work, for a series of years, upon the preparation of an unofficial formulary, on the plan of that first issued in this country. This has recently been issued. It contains 811 titles, among which are many chemicals and crude drugs with definitions or descriptions, in the style of the pharmacopœia. The work contains many articles and preparations which are not used on this side of the Atlantic, but also many others which are more or less in demand. We may observe right here that we expected a larger series of fluid extracts to be introduced, but we find only the following: Fl. Ext. of Cascara Sagrada, Castanea, Caffea (from unroasted coffee), Cotton-root, Grindelia, Hamamelis (from coarsely powdered, hence dry leaves), Corn-silk, and Piscidia. A good many solid extracts are introduced, the utility of some being doubtful. We quote a number of selected formulas, remodelled after the method customary in this country:

Aqua Chloroformi.

[Chloroform Water.]

Chloroform	1 part.
Water	2,000 parts.

Dissolve. Keep protected from light.

Aqua Cosmetica Kummerfeldi.

[Kummerfeld's Wash Water.]

Camphor, in fine powder	1 part.
Acacia, in fine powder	2 parts.
Precipitated Sulphur	12 "
Rose Water	40 "
Lime Water	45 "

Triturate the solids with the rose water gradually added, and finally mix with the lime water.

The preparation is to be shaken before use.

Aqua Dentifricia Bototi.

[Botot's Water, or Tooth Wash.]

Cloves, in coarse powder	30 parts.
Ceylon Cinnamon, in coarse powder	30 "
Anise, in coarse powder	30 "
Cochineal, in coarse powder	20 "
Alcohol	2,000 "
Oil of Peppermint	15 "

Macerate the solids with the alcohol during one week, frequently shaking. Filter, and in the filtrate dissolve the oil of peppermint.

Aqua Ophthalmica Romerschauseni.

[Romerschausen Eye Water.]

Tincture of Fennel	1 part.
Water	5 parts.

Mix them. A milky, faintly green liquid.

(Tincture of fennel is prepared by pouring 150 parts of alcohol upon 30 parts of bruised fennel, then adding 5 parts of oil of fennel, macerating forty-eight hours, and filtering.)

Aqua Rosæ Triplex.

[Triple Rose Water.]

Oil of Rose	12 drops.
Water, lukewarm	1 liter.

Add the oil to the water, shake for some time, and filter. The product should be turbid.

Aqua Sedativa Raspail.

[Raspail's Sedative Water.]

Sodium Chloride	60 parts.
Water	1,000 "
Spirit of Camphor	10 "
Water of Ammonia	60 "

Dissolve the sodium chloride in the water, then add the spirit of camphor and ammonia. The product should be turbid. It should be shaken before being dispensed.

[Our National Formulary gives different proportions; the ammonia is there about double the weight of the sodium chloride.]

Bacilli Iodoformi.

[Iodoform Pencils.]

Iodoform, in fine powder	10 parts.
Cacao Butter	9 "
Castor Oil	1 part.

Mix them in a gently warmed porcelain mortar, and when the mass has been half cooled, suck it into glass tubes having a lumen of 3 Mm., and place these in cold water. When the mass is cold push the pencils out, and cut them into pieces or points of 6 Cm. (2¾ inches) in length.

Charta Antasthmatica.

[Asthma Paper.]

Potassium Nitrate	17 parts.
Extract of Stramonium (inspissated)	10 "
Sugar	20 "
Water, hot	100 "

Dissolve the solids in the hot water, strain the solution, impregnate white filtering paper with it, and dry it.

Emplastrum Adhæsivum Anglicum.

[Englisches Pflaster. Isinglass Plaster.]

Isinglass, cut as fine as possible	50 parts.
Sugar	1 part.
Water	a sufficient quantity.

Heat the isinglass with 200 parts of water in a steam bath until most of it has been dissolved, then strain. Treat the undissolved residue again with 200 parts of water in the same manner. Reduce the united strained liquids by evaporation to 300 parts and add the sugar. When the liquid has become tolerably cool, apply it, by means of a soft, broad brush, upon silk taffeta stretched on a frame, in separate coats, the first three being applied in a cool room, and the subsequent ones in a moderately warm room. Each coat must be dry before the next is applied. The back of the taffeta is coated with tincture of benzoin previously diluted with an equal weight of alcohol.

Fifty Gm. of isinglass are required to prepare 5,000 square Cm. (about 12⅔ square feet) of the plaster.

[*Note.*—The above formula differs from that of the U. S. Pharmacopœia for Emplastrum Ichthyocollæ. The latter directs a small proportion of glycerin, which is a decided advantage, as it prevents the coating from cracking.]

Emulsio Amygdalarum Composita.

[Compound Almond Milk.]

Sweet Almonds, well washed	5 parts.
Hyoscyamus Seed	1 part.
Dilute Bitter-Almond Water	50 parts.
Sugar in moderately fine powder	5 "
Magnesia (calcined)	1 part.

From the sweet almond and the hyoscyamus seeds prepare an emulsion with the dilute bitter-almond water in the usual manner. Strain, and to the strained liquid add the sugar and the calcined magnesia.

This preparation should be freshly made when required.

[*Note.*—Dilute bitter-almond water is prepared by diluting 1 part of bitter-almond water (Pharm. Germ., iii.) with 19 parts of water. The official bitter-almond water of the Germ. Pharm. contains 1 per mille of hydrocyanic acid; hence the diluted water contains 1 part of hydrocyanic acid in 20,000 of water.]

Emulsio Amydalarum Saccharata.

[Almond Milk.]

Sweet Almonds	10 parts.
Syrup	10 "
Water	a sufficient quantity.

From the sweet almonds prepare an emulsion in the usual manner, using such an amount of water that the strained product amounts to 90 parts. In this dissolve the sugar.

Ferri Citras Effervescens.

[Effervescent Citrate of Iron.]

Sodio-Pyrophosphate of Iron	24 parts.
Citric Acid	60 "
Sodium Bicarbonate	60 "
Sugar	120 "

Mix the substances [which should be in moderately coarse powder], and warm them very gently in a porcelain mortar, under a continuous trituration, until the mass agglutinates. After having been allowed to cool, the granular mass is passed through a moderately fine sieve, and the product kept in dry, well-stoppered vials.

White granules, soluble in water with evolution of carbonic acid, and possessing a mild, agreeably acidulous taste.

The product should be protected from light.

New Method of Determining Phenol.

L. CARRÉ weighs 10 Gm. of pure phenol, and makes up its solution to 1 liter, and with this he prepares a series of standard liquids progressively weaker at 5, 4, 3, 2, 1 Gm., 0.8, 0.6, 0.4, 0.2, 0.1 Gm. per liter. Suppose we have a solution of phenol. If it is concentrated it is first diluted to one-tenth. Of the dilute liquid 25 C.c. are taken and introduced into a flat-bottomed flask with 5 C.c. of nitric acid. Similar portions are taken from the standard solutions, and all the flasks are placed on one and the same water bath for one or two hours after each has received an equal admixture of nitric acid. All must be heated for exactly the same length of time. Under these conditions there are produced nitro-phenols in proportions which depend evidently on the respective quantities of the elements coming in contact. The coloration found in two experiments having the same concentration of phenol, heated for the same time and in the same manner, is always strictly equal. A preliminary examination will permit us to eliminate the standards the coloration of which deviates too far from that of the sample under examination. To obtain further precision after the action of nitric acid at the temperature of the water bath, we add 20 C.c. of caustic soda and make up the volume to 50 C.c. We filter, if necessary, and compare the specimen with the standard which approaches nearest to it in shade, with the aid of the colorimeter. The author has thus found 3.52 Gm. and 0.09 Gm. phenol per liter, the real quantities being 3.50 and 0.10 Gm. If alcohol is present it must be driven off. Impure phenols must be heated long enough to destroy the tarry products present.—*Compt. Rend.*, 113, and *Chem. News.*

Borax and Chloral.

THE growing practice of ordering "borated chloral," or a mixture of borax and chloral, for certain throat affections has induced a French pharmacist, M. Dujardin, to publish a note calling attention to the fact that the product supplied will vary with the temperature at which it is prepared (*Bull. Gén. de Thér.*, July, p. 91). When the solution is made in the cold, as the borax is without perceptible action on chloral at a low temperature, the latter will remain intact in the solution. With the application of heat, however, the two compounds will react, and chloroform will be liberated from the chloral and may remain in the liquid. Should the liquid be allowed to boil for a few minutes, the whole of the chloral would be decomposed and the resulting chloroform would volatilize. M. Dujardin therefore recommends that if in making this preparation heat be used to dissolve the borax, the solution should be allowed to cool before adding the chloral.—*Pharm. Journ.*

NEW FILTER PRESS FOR LABORATORIES.

THE use of the filter press for the separation of precipitates is well known, as are also the services that it is daily rendering Yet it has been found that in certain cases it furnishes but imperfect results, especially when it is a question of filtering bodies that do not pass through ordinary fabrics. Great difficulties present themselves whenever it is necessary to employ special filters, or when modifications in the temperature or pressure become necessary. Recourse had to be made, for laboratory tests, to costly and complicated apparatus.

The apparatus recently proposed by Mr. Lefranc, which we illustrate herewith, remedies these inconveniences. The apparatus permits of making all laboratory examinations without installation and without machines. It is made of ebonite, so as to resist acids. It may, however, be made of any other material, such as bronze, cast iron, tin, etc.

Fig. 1 gives a view of the apparatus taken apart.

Fig. 2 shows it in operation.

FIG. 2.

The filtering material, fabric or paper, is placed, as in industrial filtering presses, in a box formed of three parts: the ends, A and B, and the ring, D. The ends, A and B, contain grooves that lead the filtered liquid to the tubulures, *a b*. The ring, D, is provided with a tubulure which leads the mixture into the filtering chamber.

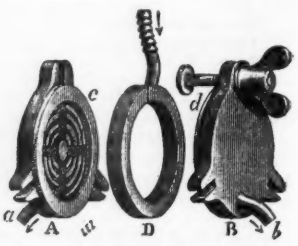


FIG. 1.

The filtering material, placed on each side, forms the filtering chamber. Tightness is obtained by rubber washers, fixed to the plates A B, against the ring, and by three thumb nuts. Above there is a funnel, into which is poured the material to be filtered. A height of five or six feet is sufficient for most tests.

We have thus, on the one hand, the filtered liquid, and, on the other, the cake, which it is easy to gather or to weigh through the increase in weight of the filter.

It is possible also, with the Gay-Lussac pump in use in all laboratories, to place ourselves in the exact conditions of the industries by employing strong pressures. We may also connect the tubes, *a* and *b*, with a receptacle in which a vacuum is formed, and thus obtain a rapid filtration, in which will be combined the action of depression with that of compression.

The apparatus is compact, and the filtering surface is of 15½ square inches. It will, therefore, be easy to calculate the rendering of industrial apparatus, and the comparative value of various fabrics, either as regards resistance or filtering value.—*Le Génie Civil.*

Antinervine.—The substance which has also been called salicyl-bromanilide is, according to Ritsert, a mixture of

Ammonium Bromide	25 parts.
Salicylic Acid	25 "
Acetanilide	50 "

Note on Celluloid.

M. De la Royne describes the composition, manufacture, and properties of celluloid in the following manner in the *Revue de Chimie Industrielle:*

Celluloid is not obtained by a single operation. A very thick collodion is first made, in which the ether is replaced by camphor, and which, therefore, contains pyroxylin or nitrocellulose, camphor, and alcohol; sometimes, and this is the method adopted in Germany, ether is also added. This collodion is brought to the consistence of a paste, slightly heated, and rolled; the heat, which is gradually increased, removes the volatile solvents, and the pyroxylin and camphor combine in more intimate manner to produce a horny, transparent substance.

A German chemist, who has made numerous experiments with celluloid, has expressed the opinion that the product is not the result of a true chemical combination, but of an action resembling that which takes place in leather. In support of this statement we quote the chemical composition of two different kinds of celluloid, as given by M. Boekmann:

	A.	B.
Pyroxylin	64.89	73.70
Camphor	32.86	22.79
Ash (and coloring matter)	2.25	3.51
	100.00	100.00

The first of these analyses shows the composition of celluloid as made at Berlin; it is generally met with in commerce in the form of sticks. The second is of that made in Berlin, which is usually found in plates of varying size.

The nitrocellulose itself can be made in various ways; either paper, cotton, or shavings can be employed. The cellulose is placed into glass vessels containing a mixture of one part of fuming nitric acid with two parts of sulphuric acid, and the temperature kept at about 22° C. The soaking continues from three to twenty minutes, according to the nature of the material. According to another process, 115 Gm. of sulphuric acid of specific gravity 1.84, and 93 Gm. of nitric acid of specific gravity 1.40, may be heated together to 80° in a porcelain dish. As much cotton as possible is immersed in this liquid, and, after soaking for five minutes, washed freely in water. The product thus prepared is completely soluble in alcohol.

M. Franchimont states that when paper is treated with a mixture of sulphuric acid and acetic anhydride, a colored liquid is formed which gives a precipitate with water. The powder thus formed, after washing in a large quantity of water and then with cold alcohol, dissolves in boiling alcohol, and crystallizes out, on cooling, in needles or plates. This substance is almost insoluble in ether, dissolves in benzin, and melts at 212° C. It corresponds to the formula $C_{40}H_{54}O_{27}$, and is looked upon by M. Franchimont as a triglucoside containing eleven acetyl groups.

The pyroxylin, prepared as above described, is left for twenty-four hours in contact with 15 to 35 parts of camphor and 11 of alcohol of 90 per cent strength; a gelatinous mass is thus obtained which is solidified by heat, the alcohol being driven off. This mass is usually rolled between metal cylinders heated by steam on the inside, the external surface being kept at about 60°, and this rolling is continued, the cylinders being gradually brought closer together, until the sheet is about 12 Mm. thick and has the wished-for strength and consistence.

Crude celluloid is a horn-like, transparent mass, of slightly yellowish color, and of specific gravity 1.25 to 1.45. Heat softens it and renders it capable of taking impressions. At 90° it becomes very plastic, and on further heating it becomes still softer, but when heated for some time at 140° the camphor volatilizes and the pyroxylin is left.

It readily kindles, and burns with a smoky flame like turpentine; it can be extinguished by vigorous blowing, but continues to disengage thick vapors of camphor (sometimes it burns with great rapidity, and is extremely dangerous for some purposes; moreover, it softens with heat, a great disadvantage for many applications). It is not affected by percussion, and cannot be fired even by fulminating caps.

Sulphuric acid rapidly decomposes celluloid on heating, while hydrochloric acid attacks it much less vigorously. Nitric acid slowly attacks it in the cold, very rapidly on heating, and the same is true of caustic soda. Acetic acid dissolves it, giving a solution from which water precipitates camphor and nitrocellulose. It is also soluble in ether, acetic ether, acetone, fatty oils, alcohol, and turpentine.

In order to imitate marble, ivory, or shell, the celluloid must be colored either uniformly or in stripes. This is done in the first case by introducing the coloring matter —usually mineral powders, oxide of zinc, salts of baryta, strontia, copper, lead, mercury, etc.—while the mixture of nitrocellulose and camphor is being worked. In the second case, pastes of the requisite shades are first prepared, which are rolled and placed in moulds. The harmonious arrangement of colors depends entirely on the skill of the workman.—*J. Soc. Chem. Ind.*

Liquid Persian Galbanum.

Mr. E. M. Holmes read a paper on this subject at the recent British Pharmaceutical Conference, of which the following is an abstract:

This paper dealt with the origin of the official galbanum It is stated that galbanum is derived from two plants—*Ferula galbaniflua* and *Ferula rubricaulis*—and although Dr. Aitchison has of recent years done something to clear up the haziness which surrounds our knowledge on the subject, the author was of opinion that we are anything but clear regarding it. Commercial galbanum is of two kinds, Levant and Persian. The specimens of the former in the museum of the Pharmaceutical Society consist of (1) tears, (2) small lumps, and (3) agglutinated masses somewhat soft and containing a portion of adherent root. Persian galbanum is found in tears, and also as a brownish liquid of the consistence of Venice turpentine. Mr. Holmes fully described the characteristics of all these varieties, and their behavior towards reagents, and concluded, from a bibliographical review of the whole subject and a short examination of specimens, that all commercial varieties of galbanum come from or through Persia. Speaking of the various plants to which the origin of the gum resin has been attributed, he expressed the opinion that botanists have often been misled by natives, perhaps not intentionally, but because the same name is in the East often applied to different substances. For instance, Dr. Aitchison found *Ferula galbaniflua* (Boiss. et Buhse) in Afghanistan, and considered that this was a source of the drug; but Mr. Holmes has been able to prove, from the resin contained in this plant being different from ordinary galbanum, that it is not the source of the commercia drug. With it the whole subject of the origin of the liquid galbanum is, of course, involved, and he is led to the conclusion that the liquid Persian galbanum of commerce is derived from an undescribed species of *Ferula* allied to *F. galbaniflua*. In chemical characters, liquid Persian galbanum agrees closely with Levant galbanum, but differs markedly in odor, and the fruits found in it nearly approach those of *Ferula galbaniflua* Boiss. *Ferula rubricaulis* Boiss. does not yield galbanum, but a gum resin of alliaceous taste and odor; nor does the *Ferula galbaniflua* of Aitchison afford galbanum.

Tannin in Urine.

The author recommends the following test: Four to five C.c. of urine, either after remaining a short time or warmed, are mixed with 5 to 10 drops of iodine solution (1:10); the urine is shaken after the addition of each drop of iodine. In the presence of tannin a beautiful and characteristic green coloration is produced; with excess of iodine the coloration becomes brownish-red. In the absence of tannin the iodine is at first absorbed and then a red coloration is produced, which changes to reddish-brown on the addition of more iodine.—S. Kathrein in *Chem. Centralbl.* and *Journ. Chem. Soc.*

Milk of Sulphur.

EVER since the passage of the British Pharmacy Act, there has been much trouble caused by the varied interpretations put upon the terms "milk of sulphur" and "precipitated sulphur," and many prosecutions were had and fines imposed for dispensing or selling that which the purchaser may have actually intended, but which the term under which it was asked for did not justify. In his recent "Report on the British Pharmacopœia" (for 1890) Prof. J. Attfield devotes considerable space to the questions involved, and he even proposes to legalize the interchangeability of the abovementioned terms by making "milk of sulphur" an official synonym of "precipitated sulphur." While we do not approve this, believing it preferable that the term "lac sulphuris," or "milk of sulphur," should either be allowed to die out gradually or at least be restricted to what it originally designated, yet Prof. Attfield's paper contains so much interesting matter that we lay a considerable portion of it before our readers.

It will be seen that, so far as Prof. Attfield's information goes, no calcareous precipitated sulphur is made in the United States or in any other country except Great Britain. We have been told, however, that it has been made here, at least some time ago. Whether any of it is still on the market we are unable to say. All the precipitated sulphur examined by us was free from calcium sulphate.

Prof. Attfield says:

Sulphur Præcipitatum (*Precipitated Sulphur*).—Suggested synonyms, *Lac Sulphuris*, Milk of Sulphur.

It will be necessary to treat these names and synonyms somewhat fully, in order that there may be no mistake in future as to their true significations. At present the whole subject is in a state of confusion.

The London Pharmacopœia of 1721 gave the first process of lac sulphuris, offering such a choice of one of two leading materials as would, we now know, afford practically pure precipitated sulphur on the one hand, or precipitated sulphur mixed with more or less sulphate of calcium—dependent partly on the extent of edulcoration, but probably always with much, sometimes two-thirds, of this calcareous substance—on the other hand. The London Pharmacopœia of 1746, omitting one of the two materials just alluded to, gave a process for sulphur præcipitatum which would, we know, afford only the mixture of precipitated sulphur with more or less sulphate of calcium, and pointed out that lac sulphuris was the usual name for this product, but that sulphur præcipitatum was to be the new name. The London Pharmacopœia of 1788 set forth a process for sulphur præcipitatum that would yield practically pure—that is, non-calcareous—precipitated sulphur; and Dr. Healde's translation of the London Pharmacopœia of 1809 also gave for "Sulphur Præcipitatum, P. L. 1787, P. L. 1745; Lac Sulphuris, 1720," such a lime-and-hydrochloric-acid process as would yield what is known as pure precipitated sulphur, which process and name have been retained officially to the present time, with the exception of the period from 1836 to 1851, when sublimed sulphur alone was official. The last London Pharmacopœia, that of 1851 to 1864, was best known to pharmacists by Phillips' translation, in which the process just alluded to is introduced by the following list of names and synonyms: "Sulphur Præcipitatum, P. L. 1824. Precipitated Sulphur, Lac Sulphuris, P. L. 1721. Sulphur Præcipitatum, P. L. 1746, P. L. 1788, P. L. 1809." Other leading authorities—Gmelin, "Chemistry"; Pereira, "Materia Medica"; Redwood, "Pharmacy"; Squire, "Pharmacopœias Compared"—and all British authors of repute, though they also allude to the calcareous article, treat "precipitated sulphur" and "milk of sulphur" as one and the same thing. Many, probably most, British pharmacists of the present day apply the name "milk of sulphur" indifferently to the calcareous and non-calcareous varieties of milk of sulphur.

Respecting sulphur obtained by precipitation, therefore, we have in Great Britain two quite different things, each represented by the same two names. We have calcareous precipitated sulphur, and we have non-calcareous precipitated sulphur. The former has been, and will always be liable to be, termed "precipitated sulphur" and "milk of sulphur."

In other countries no such state of confusion exists, for the simple reason that, while two names, "precipitated sulphur" and "milk of sulphur," are everywhere used, *two things are unknown*. The calcareous precipitated sulphur is *never manufactured, never used*. It appears to have been imported into the United States from Great Britain under some misapprehension (Proceedings of the American Pharmaceutical Association, vol. xix., pp. 60 61, and 346); but outside the British Empire calcareous precipitated sulphur is practically unknown to the civilized world. Other peoples use only the precipitated sulphur which is unmixed with precipitated sulphate of calcium, and which sulphur they term indifferently "precipitated sulphur" and "milk of sulphur." The processes prescribed for its preparation in official and other books, and its stated characters and tests, suffice to prove that outside our empire the calcareous precipitated sulphur is unknown. That in other countries the terms "precipitated sulphur" and "milk of sulphur" mean one and the same thing, and that both terms are freely employed in most countries, the following references will establish. Lochman's translation of the German Pharmacopœia of 1884, published in the United States: . . . The original source of the confusion in Great Britain, caused, not by calcareous precipitated sulphur being termed both "precipitated sulphur" and "milk of sulphur," nor by non-calcareous precipitated sulphur being termed both "precipitated sulphur" and "milk of sulphur," but by each of these two different substances being called by the same two names, is not easily explained—first, because the genesis of the term "milk of sulphur" has not been made out satisfactorily; secondly, because we do not know whether to set down to pharmaceutical accident or to therapeutic design the production of both varieties under P. L. 1721, and the calcareous variety only under P. L. 1746. The name "milk of sulphur" was probably applied to the *milk-like fluid* obtained on adding an acid to an aqueous solution of a polysulphide, afterwards being retained for the sulphur precipitated from that fluid. (See the following work, quoted by T. B. Groves in the *Pharmaceutical Journal*, 3d series, vol. vii., p. 18: the "New Dispensatory," printed for J. Nourse, 1780.) If this be so, a simple pair of experiments will show that each fluid must have been equally milk-like, the fluid containing suspended sulphur only, and the fluid containing the mixture of suspended sulphur and suspended hydrous sulphate of calcium; hence, that neither could have had a monopoly of the name "milk of sulphur" through it alone having a milk-like appearance.

If, as some specious pleaders have argued, the calcareous precipitated sulphur was probably the original "milk" of sulphur, because its color would be likely to obtain for it such a name, whereas the color of the non-calcareous precipitated sulphur would not suggest the term "milk," it is very remarkable that the compilers of the 1746 Pharmacopœia (who first definitely ordered what may be distinguished as the calcareous precipitated sulphur) should of all persons have desired the name "milk of sulphur" to be changed to "precipitated sulphur." It would be natural to give the name "milk of sulphur" to a milk-like fluid of which the chief and invariable component was the old mineral or sublimed sulphur of the first three London Pharmacopœias, 1618, 1650, and 1677; it would not be unnatural to retain that name in 1721 for the sulphur deposited from the milk-like fluid, seeing that it both resembled and differed from the original sulphur; and it would be natural to change that name, in 1746, to "precipitated sulphur," because of the incongruity involved in retaining the name "milk" for a pulverulent substance. Probably the presence of hydrous sulphate of calcium in the "Sulphur Præcipitatum," P. L. 1746, was an accident, and, so far from being designed, was not considered of any moment. Perhaps it was not even known to be present; for there is no good evidence forthcoming that precipitated sulphate of calcium has or was ever considered to have any therapeutical value.

Whatever be the history of the matter in this country, and whatever the practice in other countries in past or present times, it is at least quite clear that in England the pharmacopœias have, at different dates, recognized both non-calcareous precipitated and calcareous precipitated sulphur. Moreover, the calcareous sulphur has

officially been termed both lac sulphuris and sulphur præcipitatum. Not only so, but the non-calcareous precipitated sulphur also has been, officially, termed both lac sulphuris and sulphur præcipitatum. Hence neither substance can claim unquestionable monopoly of the name precipitated sulphur; neither substance can claim unquestionable monopoly of the name milk of sulphur.

Following the lead of the pharmacopœias, medical practitioners, pharmacists, and the public from time to time appear to have favored now one and now the other of these two varieties of sulphur, terming the calcareous variety both *milk of sulphur* and *precipitated sulphur*, terming the non-calcareous variety both *milk of sulphur* and *precipitated sulphur*, a natural and excusable conservative feeling often inducing individuals to continue to favor the variety and name to which they had become accustomed, even though that variety and name had perhaps ceased to be current in the Pharmacopœia of the time. Continuing to follow the official lead, and the pharmacopœias above mentioned having ceased for a hundred years to recognize the calcareous variety, most medical men have gradually ceased to use it, and many druggists have ceased to sell it and have successfully induced their customers to purchase only the non-calcareous variety, the purchasers themselves, however, in the majority of cases continuing to ask for "milk of sulphur." The public seem, in fact, to be quite unable to adopt such changes in names, and pharmacists are consequently, and not unreasonably, requesting that their efforts to sell only the non-calcareous precipitated sulphur of the British Pharmacopœia, when asked for "milk of sulphur," should, in harmony with the history of the subject in this country, and past and present practice in other countries, be supported officially by *lac sulphuris* and "milk of sulphur" being inserted as synonyms of *sulphur præcipitatum* in the next edition of the British Pharmacopœia. See *Pharmaceutical Journal* [3], vol. xx., p. 573, and vol. xxi., pp. 428 and 592.

The Solvent Action of Alcohol of Various Degrees of Strength upon Certain Drugs.

MESSRS. E. H. FARR and R. WRIGHT read a paper at the recent British Pharmaceutical Conference on the above subject, giving the result of their experiments, in continuation of last year's report. In the present paper the results obtained with *Hyoscyamus* are reported.

The objects aimed at have been:

1. To ascertain what menstruum is best adapted for the exhaustion of the drug.

2. To find the average contents in alkaloid and extractive of tinctures prepared with alcoholic menstrua of different strengths.

3. To test the comparative value of alternative processes for the preparation of tinctures.

The authors employed menstrua of 80, 70, 60, 50, and 40 per cent strength (by volume), and find, as the result of experiments made with twelve specimens of henbane leaves and one of root, that the alkaloid may be completely extracted by any of these menstrua.

The process employed for the estimation of the alkaloid in the tinctures consisted in evaporating 100 C.c. of the sample. with the addition of water until all alcohol was driven off, allowing the residual liquor to cool, acidifying with dilute sulphuric acid, removing all coloring matter by agitation with successive portions of chloroform until the latter came away colorless, washing out traces of alkaloid from the mixed chloroformic washings with acidulated waters, and adding the latter to the original alkaloidal solution. From this the alkaloid was extracted by treating with ammonia in excess, and shaking out the liberated alkaloid with two or three doses of chloroform. The mixed chloroformic alkaloidal solutions were then shaken with a little slightly ammoniated water, and after separation the chloroform layer was drawn off and evaporated, the residue being heated at 100° until the weight was constant.

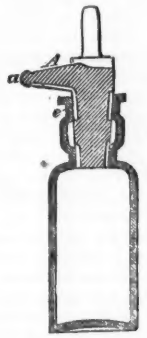
The percentage amount of extractive was ascertained by evaporating 10 C.c. of the sample, drying the residue at 100°, and multiplying the amount by 10.

The paper was illustrated by three tables, the first giving the percentage yield of alkaloid and extract dried at 100°, the second showing the results obtained on mixing the tinctures (1) with water, and (2) with 90 per cent of alcohol (as indicating the presence or absence of fatty, waxy, resinous, and mucilaginous substances), and the third giving the results of experiments with the assay process.

The authors recommend the use of a 50-per-cent menstruum for the preparation of this tincture, and also advocate its standardization, the standard to be fixed at 0.01 per cent. The results were also given of experiments upon the best process to follow in making the tincture.

Four processes were tried, namely, seven days' maceration, double maceration, maceration and percolation, and continuous percolation. From the results given it appears that either of these processes is quite effectual in removing the whole of the alkaloid present in the leaves, while the percentage of dry extract varies somewhat considerably, the tinctures prepared by continuous percolation showing the highest yield.—After *Chem. and Drugg.*

DROP COUNTER.



THE accompanying illustration represents a new drop-counting bottle patented by J. Traube and A. Kattendidt (Germ. Pat. No. 56,919). The object is to cause the delivered drops to be always of the same size, no matter at what angle the bottle is held. To accomplish this the stopper is provided with a conical extension A, the end of which (*a*) is globular.—*Chem. Zeit.*

The Action of Wine upon Pepsin and Digestion.

WITHOUT dwelling upon the known action of alcohol, which has been well studied by Petit, and upon that of cream of tartar, the novel results arrived at by L. Hugouneng, in some recent researches (*Bull. Soc. Chim.*), are the following: 1. All wines, without exception, interfere with the action of pepsin, those richest in alcohol, cream of tartar, and coloring matter being most injurious, as it was easy to foresee. 2. Among the elements of natural wines the coloring matters act in concert with the alcohol and the cream of tartar to retard or arrest pepsic indigestion. 3. The acidity of normal wines is unable to excite the action of pepsin; in most cases it does not appear to assist. 4. Among the coloring matters introduced fraudulently into wines, methylene blue, azoflavine, solid blue, and especially magenta, interfere with pepsic digestion. The vegetable colors, black mallows, elderberries, and maki, like œnoline, exert an injurious action. 5. Plastering, by removing a part of the cream of tartar, eliminates an element of natural wines which retards the action of pepsin *in vitro*. Digestion is more rapid in presence of plastered wines than of natural wines. but the advantage which plastered wines have in this respect does not conceal their other disadvantages.

Fractional Crystallization of Quinine Sulphate.

A QUININE sulphate containing 6 per cent of foreign sulphate, when saturated at 100°, gives scarcely any deposit on cooling to 90°; from 90° to 50° the crystals have nearly a constant composition and contain not more than 1 to 2 per cent of impurity. Below 50° (and principally about 40°) more than the average amount of cinchonidine appears in the deposit. Between 35° and 25° usually, an abundant crystallization takes place, dependent on the proportion of cinchonidine and cinchonine present with quinine; this arises from the separation in a solid form of molecular compounds, and sufficient time is required before filtering off the liquid which is to be employed for the ammonia assay of the quinine sulphate. The results with various samples of sulphate show that the amount of aqueous ammonia required in the ammonia test diminishes with the temperature of filtration. An inspection of the curve plotted from these results shows that the temperature 15°, selected for filtration in the ammonia assay, has been well chosen.—L. PRUNIER in *Journ. de Pharm.* and *Journ. Chem. Soc.*

Castor Oil and Malt Extract.

CASTOR oil has for many years been regarded as one of the most generally useful aperients, but its employment has been considerably limited on account of its nauseous flavor. As many experiments have been made with a view of obviating this difficulty, the idea suggested itself of employing extract of malt as a vehicle, since the extract has been found so useful in masking the taste of cod-liver oil and other medicines of a nauseating character which are objected to by so many people.

The specimens presented are composed of nearly equal quantities of oil and extract of malt. They have been submitted to many therapeutists, and a general opinion has been expressed that the nauseous flavor of the oil is very little or not at all perceptible, and that no disagreeable taste is left in the mouth after the administration.

One advantage in the employment of extract of malt for disguising the flavor of castor oil is that the extract is itself a mild aperient in large doses and may be found a valuable aid in connection with the castor oil. The rationale is readily seen. The gum in the Mistura olei ricini tends to cause early decomposition of the preparation, whereas the pseudo-solution of castor oil in malt extract appears to keep perfectly for an indefinite period. It will be observed that the mixture is light and clear. I am not yet able to say whether the oil is actually dissolved in the extract; I hesitate to call it a solution, but the chief evidence in favor is that, as I show it, it is translucent, and upon adding to water the mixture becomes turbid and forms an emulsion. The combination is, I believe, well adapted for giving to children and fastidious persons, and thus assists in making the oil available to patients hitherto unable to take it.

For preparing the mixture the mortar should be first warmed and the extract of malt triturated in it until it becomes somewhat liquefied. The castor oil should then be added gradually during continuous trituration.—S. M. BURROUGHS in paper read before British Pharmaceutical Conference; after *Chem. and Drugg.*

Preparation of Catechu in British Burma.

THE following description of the manner of preparing catechu in British Burma, as furnished by Mr. Carter, Deputy Conservator of Forests in Tharawaddy, is given in the "Dictionary of Economic Products of India" (i., 33):

"For the working of one caldron three men are necessary; but if a large number of caldrons are employed there is some saving of labor. Of the three men, one man is employed in felling the trees and dragging them, by means of cattle, to the cutch-boiling place. The second clears the logs of sapwood and cuts the heartwood into chips. The third attends to the fires and the boiling process. The chips are put into earthen pots, which are filled with as many chips as they will contain, then water is poured in until the pots are nearly full. The pots (which have the capacity of about 3 gallons) are then placed on the fire and boiled for about twelve hours, by which time the water is reduced to about one-half the original quantity. For 1 caldron 20 to 25 of these earthen pots are employed. The caldron is nearly filled from these pots; and when the extract in the caldron is reduced to about one-half, the caldron is again filled from the pots, and this is repeated until the pots are emptied. The boiling process is generally accelerated by the employment of a large earthen pot, which is set up near the caldron, and is filled at the same time as the caldron, and kept boiling, the extract from the small pots being constantly added as that in the larger pot is reduced. The caldron is then filled from the large pot instead of from the small ones. The Burmese call this large pot the Yeni-o, or red water pot. The extract from the pots having all found its way into the caldron, the boiling is continued, and the liquid is stirred until it attains the consistence of syrup and fills only about one-fifth of the caldron. The caldron is then removed from the fire and stirred with a piece of wood, shaped like a paddle, for four hours or more, by which time the mass has attained a greater consistence and is cool enough to be handled. It is then placed in a mould, like a brick mould, and is left to cool. This generally happens at night, and by next morning the result is a brick-like mass of cutch weighing 36 to 44 pounds.

"The stirring business, which takes place after the caldron is removed from the fire, is more of a beating-up, and I have never been able to ascertain what the object or effect of the process is. Cooks differ, too, in the amount of beating-up that is desirable, some being satisfied with half an hour's application." The outturn of 1 caldron of 12 gallons in twenty four hours, when properly worked. is fairly constant at the figure given by Mr. Carter.

Assay of Tea.

P. DVORKOVITCH estimates the amount of theine as follows (*Journ. Anal. and Appl. Chem.*, v., 345, and *The Analyst*): Ten Gm. of tea are carefully ground and 200 C.c. boiling water are poured over it. Five minutes later the infusion is decanted. This operation is repeated three times. The tea is then boiled twice with 200 C.c. water each time so that the water is not colored, or but slightly so. The extract thus obtained is diluted to 1 liter. A portion of this extract is washed with petroleum ether three times, in order to remove the oil and the brown substance found in tea, to which Mulder has already called attention. Then 600 C.c. of this aqueous infusion, corresponding to 6 Gm. tea, are taken, washed with petroleum ether, 100 C.c. of a caustic baryta solution, containing 4 Gm. in 100 C.c., are added to it, well shaken, and filtered immediately from the precipitate obtained; 583 Gm. of the filtrate, corresponding to 5 Gm. of tea, are then mixed with 100 C.c. of 20-per-cent salt solution, and the mixture shaken with chloroform three times, about 400 Gm. chloroform being used in all. The solvent is then removed by distillation, and the residue of theine dried at 100° C. Absolutely white theine is obtained in beautiful needle-shaped crystals.

The washing with petroleum ether is necessary, first, for the removal of the ethereal oil, and, next, for that of the brown substance alluded to. One and the same tea, washed and not washed with petroleum ether, showed a difference of 0.6 per cent in its contents of theine. This method gives higher results than those of Peligot, Mulder, or J. Bell. All methods based on Mulder's principle, viz., on the boiling of the tea with magnesia or lime, give results which are low, on account of the partial destruction of the theine with evolution of ammonia.

The preliminary fermentation, to which all black teas are subjected, destroys a varying proportion of the tannin. The quality of the tea, to a very great extent, depends upon the method of fermentation, the astringency not only being lessened thereby, but the aroma being developed. The author worked out a method applicable to the determination of the tannin and to its products of fermentation, based upon the Loewenthal principle. A solution of tea, 10 Gm. to the liter, is made, precisely as above described, 40 C.c. being diluted with 500 C.c. of water, and titrated with permanganate, with indigo-carmine as indicator; 80 C.c. of the tea solution are then mixed with 20 C.c. of caustic baryta containing 4 Gm. In 100 C.c. the precipitate is filtered off and 50 C.c. titrated with permanganate. The quantity of permanganate thus expended indicates the quantity of the products of the decomposition of the tannin; that is to say, the degree of fermentation to which the leaf was subjected. The longer the fermentation lasted the more of these products. The percentages both of tannin and the products of fermentation are calculated from the oxalic acid standard of the permanganate solution, 63 Gm. of oxalic acid corresponding, according to the author, to 31.3 Gm. of tannin, and not to 41.2 as found by Neubauer.

Twenty-nine samples of tea were examined. The best qualities contained the largest amounts of theine. This was manifested more strongly when the ratio of theine to the total amount of tannin and products of fermentation was calculated. The theine varied from 2.14 in the cheapest to 3.21 in the best tea; the percentage of theine to total tannin, from 16.0 to 24.52.

It need hardly be added that these deductions are in direct contradiction with those of many other observers.

Methods for Determining Phosphoric Acid and Moisture in Crude Natural Products.

THE methods below given are those which were adopted at the meeting of the Official Agricultural Chemists in 1890. We have received inquiries from a number of subscribers and correspondents during the past few months regarding several of the details. The latter can, however, only be fully appreciated if the whole process is given.

1. *Preparation of Sample.*—The sample should be well intermixed and properly prepared, and passed through a sieve having circular perforations $\frac{1}{2}\frac{1}{0}$ of an inch in diameter, so that separate portions shall accurately represent the substance under examination without loss or gain of moisture.

2. *Determination of Moisture.*—(*a*) In potash salts, nitrate of soda, and sulphate of ammonia, heat 1 to 5 Gm. at 130° C. till the weight is constant, and reckon water from the loss.

(*b*) In all other fertilizers heat 2 Gm., or, if the sample is too coarse to secure uniform lots of 2 Gm. each, 5 Gm., for five hours at 100° C. in a steam bath.

3. *Water-soluble Phosphoric Acid.*—Weigh out 2 Gm. in a small beaker, wash by decantation four or five times with not more than from 10 to 15 C.c. of water, then rub it up in the beaker with a rubber-tipped pestle to a homogeneous paste, and then wash four or five times by decantation with from 10 to 15 C.c. of water. Transfer the residue to a 9 Cm. No. 589 Schleicher & Schüll filter, and wash with water until the filtrate measures not less than 250 C.c. Mix the washings. Take an aliquot (corresponding to $\frac{1}{5}$ Gm.) and determine phosphoric acid, as under total phosphoric acid.

4. *Citrate-insoluble Phosphoric Acid.*—Wash the residue of the treatment with water into a 200-C.c. flask with 100 C.c. of strictly neutral ammonium citrate solution of 1.09 density, prepared as hereafter directed. Cork the flask securely and place it in a water bath, the water of which stands at 65° C. (The water bath should be of such a size that the introduction of the cold flask or flasks shall not cause a reduction of the temperature of the bath more than 2° C.) Raising the temperature as rapidly as practicable to 65° C., which is subsequently maintained, digest for thirty minutes from the instant of insertion, shaking every five minutes, filter the warm solution quickly (best with filter pump), and wash with water of about the temperature of 65°. Transfer the filter and its contents to a capsule, ignite until the organic matter is destroyed, treat with 10 to 15 C.c. of concentrated hydrochloric or nitric acid, digest over a low flame until the phosphate is dissolved, dilute to 200 C.c., mix, pass through a dry filter, take an aliquot, and determine phosphoric acid as under total.

In case a determination of citrate-insoluble phosphoric acid is required in non-acidulated goods it is to be made by treating 2 Gm. of the phosphate material, without previous washing with water, precisely in the way above described, except that in case the substance contains much animal matter (bone, fish, etc.) the residue insoluble in ammonium citrate is to be treated by one of the processes described below.

5. *Total Phosphoric Acid.*—Weigh 2 Gm. and treat by one of the following methods: (1) Evaporation with 5 C.c. magnesium nitrate, ignition, and solution in acid. This method is to be used in case of all fertilizers containing cottonseed meal. (2) Solution in 30 C.c. concentrated nitric acid with a small quantity of hydrochloric acid. (3) Add 30 C.c. concentrated hydrochloric acid, heat, and add cautiously, in small quantities at a time, about 0.5 Gm. of finely pulverized potassium chlorate.

Boil gently until all phosphates are dissolved and all organic matter destroyed; dilute to 200 C.c., mix, and pass through a dry filter; take 50 C.c. of filtrate, neutralize with ammonia (in case hydrochloric acid has been used as a solvent, add about 15 Gm. dry ammonium nitrate or its equivalent). To the hot solutions for every decigramme of P_2O_5 that is present add 50 C.c. of molybdic solution. (Test the filtrate by renewed digestion and addition of more molybdic solution.) Dissolve the precipitate on the filter with ammonia and hot water, and wash into a beaker to a bulk of not more than 100 C.c. Nearly neutralize with hydrochloric acid, cool, and add magnesia mixture from a burette; add slowly (1 drop per second), stirring vigorously. After fifteen minutes add 30 C.c. of ammonia solution of density 0.95. Let stand several hours (two hours is usually enough). Filter, wash with dilute ammonia, ignite intensely for ten minutes, and weigh.

6. *Citrate-soluble Phosphoric Acid.*—The sum of the water-soluble and citrate-insoluble subtracted from the total gives the citrate-soluble.

PREPARATION OF REAGENTS.

1. *To Prepare Ammonium Citrate Solution.*—Dissolve 370 Gm. of commercial citric acid in 1,500 C.c. of water, nearly neutralize with crushed commercial carbonate of ammonia, heat to expel the carbonic acid, cool, add ammonia until exactly neutral (testing by saturated alcoholic solution of coralline), and bring to volume of 2 liters. Test the specific gravity, which should be 1.09 at 20° C., before using.

2. *To Prepare Molybdic Solution.*—Dissolve 100 Gm. of molybdic acid in 400 Gm. or 417 C.c. of ammonia of specific gravity 0.96, and pour the solution thus obtained into 1,500 Gm. or 1,250 C.c. of nitric acid of specific gravity 1.20. Keep the mixture in a warm place for several days, or until a portion heated to 40° C. deposits no yellow precipitate of ammonium phospho-molybdate. Decant the solution from any sediment, and preserve in glass-stoppered vessels.

3. *To Prepare Ammonium Nitrate Solution.*—Dissolve 200 Gm. of commercial ammonium nitrate in water, and bring to a volume of 2 liters.

4. *To Prepare Magnesia Mixture.*—Dissolve 22 Gm. of recently ignited calcined magnesia in dilute hydrochloric acid, avoiding excess of the latter. Add a little calcined magnesia in excess, and boil a few minutes to precipitate iron, alumina, and phosphoric acid; filter; add 280 Gm. of ammonium chloride, 700 C.c. of ammonia of specific gravity 0.96, and water enough to make the volume of 2 liters.

Instead of the solution of 22 Gm. of calcined magnesia 110 Gm. of crystallized magnesium chloride ($MgCl_2+6H_2O$) may be used.

5. *Dilute Ammonia for Washing.*—One volume ammonia of specific gravity 0.96 mixed with 3 volumes of water, or usually 1 volume of concentrated ammonia with 6 volumes of water.

6. *Nitrate of Magnesium.*—Dissolve 320 Gm. of calcined magnesia in nitric acid, avoiding an excess of the latter; then add a little calcined magnesia in excess, boil, filter from excess of magnesia, ferric oxide, etc., and bring to volume of 2 liters.

INFORMATION WANTED.

No. 2,543.—**Keeping Lime Juice** (SUBSCRIBER, Halifax, N. S.). What is the best method for keeping lime juice, and, also, what is the best method for filtering it?

No. 2,544.—**Storer's Dictionary of Solubilities** (M. A. M.). Who is to be the publisher of this book, and who is doing the work of revision?

No. 2,545.—**Recognition of License** (B., Conn.). Would a license (by examination) issued in Connecticut be recognized in Westchester Co., N. Y.?

No. 2,546.—**Uses of Mercury** (J. K. W.). 1. Wanted, best method of putting mercury on tinfoil or any tinned article. 2. What will dissolve mercury, and, if dissolved, will it answer for same purposes?

No. 2,547.—**Indorsed Diploma.** In what State can a Canadian registered pharmacist have his diploma indorsed, and what rules regulate druggists' liquor license in such State?

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The AMERICAN DRUGGIST *is issued on the 1st and 15th of each month. Changes of advertisements should be received before the 5th and 20th. New advertisements can occasionally be inserted after the 10th and 25th.*

EDITORIAL.

WHEN nostrum advertisers can secure the publication, as an editorial article, of such a piece of misrepresentation as the following extract from a leading New York daily newspaper, it is hardly worth the trouble to strive to enlist their support in restricting the sale of their goods to pharmacies, as it is quite apparent that the "muslin" drug store, which has no goods of its own manufacture for sale, is the retailer they are bidding for.

The publication of such a screed would also appear to indicate that the growth of a practice among pharmacists of making and selling their own goods, for their own benefit, has increased to such a degree that the maker of secret preparations finds his own business suffer by the competition, and *squeals*. Assuming this to be the case, the outlook for the retailing pharmacist is encouraging, if he continues to fight it out on that line.

One suggestion we have to offer: it is that the retail pharmacist do some advertising himself in his local paper. Aside from the direct benefit which will result, it will also render the proprietor somewhat more inclined to consider whether he can afford to imperil his income from this source by the publication of slanderous and misleading statements regarding pharmacists.

"It's a poor rule which will not work both ways," and if advertising in public prints makes such a model of virtue and commercial honesty out of the nostrum maker, and promotes the sale of his trash, it will do something for the man who has good honest goods for sale at reasonable prices and at a fair margin of profit.

"THE DRUG SWINDLE."

"Some of our Western contemporaries are waging meritorious warfare on what they aptly describe as 'the substitute drug swindle'—that is, the sale by some retail dealers of an article prepared in close imitation of some well-known proprietary medicine in place of the genuine article. The extent to which this fraud is carried on is undoubtedly very great, quite as great in the East as in the West. There ought to be a way of reaching it by law. Perhaps there is; but the law may be so easily evaded that probably no force can be practically applied in restraint of the fraud so potent as public opinion. Whatever is to be said against the practice, all too general in America, of tinkering at one's system with drugs whose qualities and functions are not known and for complaints not understood, and however much patent medicines have tended to increase this admitted evil, the fact remains that there are many such medicines with reputations established by long and extensive use; and the character of their manufacturers is, to some degree, a guarantee that they possess certain virtues. Extensive advertising has rendered the public in every country village familiar with their nature, with the ingredients of which they are claimed to be composed, with the diseases they are intended to subdue, with the results their use is alleged to have produced, and with the appearance of packages in which they are placed upon the market. It is a common trick, after such medicines have become known, and after a demand for them has been created, for unscrupulous persons to devise inferior substitutes, meanly disguised in name and appearance, and, by profitable arrangements with some retail druggists, to reap the advantage of the genuine article's reputation. The druggist of whom a particular sarsaparilla or liver pill is asked doesn't happen to have that potion in stock, but, instead, has another, claimed, perhaps, to be his 'own make,' or at least to be well known to him, which he is always prepared to recommend as cheaper than the article demanded, and fully as good.

"In this way a vast number of dangerous drugs are foisted upon the public in place of those which, however undesirable for use without a physician's prescription, are at least reputable and in real demand. So far has this substitution gone that the market for certain of the most favored proprietary medicines—a market created by large expenditure and tested service—is occupied now by spurious preparations that no reputable druggist ought to have upon his shelves. The chief sinner in this business, we regret to say, is to be found among the retail druggists. Not infrequently he makes himself a knowing partner in the fraud, permitting his name to be printed on the bottles in which the substitute is supplied, or even engaging directly in its manufacture. This is altogether dishonest. Those who buy patent medicines need to be warned against allowing themselves to be cheated. They take great risks whenever they permit a salesman to persuade them to buy any drug except the one they know and want. It is little enough that science, in its highest exemplification, understands about the human system and the treatment of diseases; and people who undertake to do their own doctoring should at least be sure that they are obtaining what they intend to obtain, and that they are not taking a cheap toadstool for a mushroom."

THERE is another cloud on the horizon which is growing rapidly in size and importance, and which we have already remarked upon other occasions. That is the matter of dispensing by physicians. Do not allow the dust which arises in this combat over "patents" to obscure your observation in that direction. A few years since the practice had almost ceased, and even in country neighborhoods the doctor wrote prescriptions when he could thus avoid dispensing. At the present time the tendency appears to be in the opposite direction in cities, and there are now many in every town of any magnitude who only write prescriptions for things which they cannot readily dispense. So far as the retailing pharmacist is concerned in this, improvements in pharmaceutical preparations of late years have, to a considerable degree, contributed to his disadvantage, and the adoption of modern forms for many preparations favors their manufacture on a large scale and their being dispensed by doctors without the aid

of the retailing pharmacist in either their manufacture or sale. Price lists of so-called "office supplies" now reach every physician, and travelling salesmen to promote the business of furnishing them are not wanting. This is a perfectly legitimate development of the drug trade, and no more to be avoided or prevented than the diurnal revolution of the earth, and the thing for the retailing pharmacist to do is to secure for himself, while he yet may, as large a portion of this business as he can.

We learn through Gehe & Co.'s semi-annual trade report (see this number, page 296) that the Javanese cinchona planters intend to erect a quinine factory in the western part of Java, and that they "expect to find a market for their product in San Francisco." We fear that not only the interested parties in Java but also the publisher of the report labor under the mistaken notion that San Francisco is willing to receive and become the distributing point for a cheap grade of quinine. For it is hardly to be supposed that the product of the proposed factory will equal that which is turned out by the well-equipped and long-established quinine factories of Europe and of this country. Of course it is not impossible to manufacture sulphate of quinine of pharmacopœial purity in Java. But experience elsewhere in tropical countries has shown that this is a difficult matter. It is not only difficult, however, but naturally distasteful to those who are financially interested in it, because the price of a pure quinine would have to cover all the by-products, which are practically unsalable in such distant countries. For this reason we are justified in doubting whether the product proposed to be put on the San Francisco market will comply with the requirements of the United States Pharmacopœia, though these are liberal enough, at least at present. If the Javanese planters suppose that the California market could be used as dumping ground for a cheap quinine or a cheap "febrifuge," they labor under a great mistake. It is better to give them fair notice now than to allow them to continue in their mistaken notion —if they have labored under it. If not, no harm is done by our warning. Our object is to point out, with as much emphasis as possible, that this country has for many years past ceased to be a dumping ground for cheap trash not wanted elsewhere, particularly in the line of drugs and chemicals.

From the number of the *Chemist and Druggist* of September 5th we learn that the principal planters' association of Java has just published a most valuable return of the prospective production of quinine bark on the island for the next two seasons. At the meeting of the association at which it was made public, a resolution was also adopted declaring the direct sales of bark by one or two plantations to certain European quinine makers to be opposed to the interests of the planting community. What the Java planters aim at, and what they may possibly accomplish with a good man at their head and effective Government assistance, is shown in a recent declaration of one of their number. "Even if we do not get our factory here," said that authority, "we shall knock the European quinine speculators on the head. In that case we shall form a syndicate, which will regulate the whole of the bark exports from this island. Bark will only be sold to the European quinine manufacturers on condition that they shall turn over all the quinine sulphate prepared from it to a European syndicate, which will take care of the sale of quinine. The by-products the quinine manufacturers may sell without interference. The quinine syndicate will have an agent in every country of the world. That agent will in turn control the provincial agents, who, where the law of the country allows it, will sell quinine and quinine preparations of every description directly to the public, and, where that is not permitted, will use retailers as middlemen. The Brunswick factory, the arch-enemy, will be altogether excluded from dealing with the syndicate, and the other works are to be expressly prohibited from selling any surplus bark to this concern. The profits will be divided among the planters in ratio of the quinine value of their bark."

The scheme seems a somewhat fantastic one, and if it is attempted to put it into execution it is sure to meet with a determined opposition from many quarters. But as the Java planters now control the bulk of the rich manufacturing barks, and some of their Indian and South American colleagues will no doubt be anxious to co-operate in the scheme if fair terms are offered to them, it would be rash to prophesy its entire impracticability.

In Gehe & Co.'s report above alluded to we also find a notice regarding American bromide of potassium which seems to require some comment. Owing to the recent break of the combination between the American and German bromine manufacturers, American bromine has been thrown upon the European market in considerable quantities. And the report further states that offers of bromide of potassium and of other bromides had been received in Germany from the United States at prices lower than those asked for the home products, in which connection, however, the fact is to be considered that the American product does not comply with the requirements of the German Pharmacopœia, owing to its high percentage of chloride (5 to 6 per cent).

We are quite ready to acknowledge that the American bromide of potassium of the present market generally contains more chloride than the recent new edition of the German Pharmacopœia admits. The limit is about 1.35 per cent. The United States Pharmacopœia (issued in 1882, nine years ago) made the limit 3 per cent; in reality it was about 3.34 per cent. The preceding German Pharmacopœia had put it at about 2 per cent. The fact is that the conditions under which bromine is obtained are different in the two countries, it being comparatively more easy to remove the chlorine from the crude German product than from the American. However, the manufacture of the latter has been so improved that it is now perfectly easy to produce a salt with only 2 per cent of chloride without increasing its cost. We think it would be hypercritical to demand a still purer salt, at a higher price. There was a time, years ago, when American bromide of potassium contained 5 or 6 per cent of chloride. The market, so far as we know it, contains no such salt at the present time. And it is for the purpose of putting this statement on record that we have made comment on the quoted passage from Gehe's report.

If our manufacturers want to have their product admitted in Germany, they will have to devise means to reduce the percentage of chloride without materially affecting the cost of the product. Should they succeed in doing so, we will be the gainers. That they will increase the purity merely for the sake of reputation, or from sentiment, is too much to expect; the only inducement would be the expectation of balancing a slight increase in the cost of production by an increased sale of the manufactured product.

NEWS AND NOTES.

ENGLAND.

THE questions of substitution and cutting are almost perennial in the manner in which they so frequently come to the front. The somewhat mournful lucubrations of "Bubo" in a recent issue of the AMERICAN DRUGGIST, together with his eminently practical judgment on the subject, have been recently indorsed by an editorial in a trade paper here. So far we have not yet experienced the heavy thunder of the lay press on the enormity of inducing a customer to purchase your own article in preference to another. But it is stated that in America the vials of wrath have been outpoured from many an editor's sanctum at the growing practice, owing to the representations of proprietors that their advertisements must be curtailed.

I am not sure that we manage these things better, but at any rate we go about it differently. There are two methods by which offenders of the art and practice of substitution are treated—either by the prompt and decisive action of the law, or by convincing them that the policy pays best of supplying the article asked for. Messrs. Beecham, of pill fame, have adopted the former method by an ingenious detective arrangement in various towns. They ascertained that the greatest offenders were retailers who, being asked for two cents' worth of Beecham's pills, supplied some other maker's pills. They accordingly sent out spies, with the result that numerous injunctions were obtained, chiefly against small dealers, for this fraudulent substitution. In each case it was, of course, necessary to prove, by means of two or three witnesses, that Beecham's pills were particularly asked for. Besides the injunction a penalty of $25 has usually been enforced, so that probably much of the imposition has been stamped out. The other method is adopted by the proprietors of more recent candidates for public favor, such as Vinolia and its preparations, etc. In these cases, by extensive advertising, the owners have sought to impress chemists that they intend to create a sale for their articles, whilst the prices are such as to allow a good margin of profit, and special care is taken to prevent their being "cut." By these means they have succeeded in convincing many that the policy of always keeping their goods in stock and supplying them when wanted really pays the best.

The hardest part of this otherwise admirable method is to prevent a preparation which is daily growing in popular demand from being grievously "cut" by stores, etc., as directly this takes place it is looked on with disfavor by many chemists. Nor is this surprising when one has experienced the annoyance of respectable customers haggling over, say, two cents, the difference between the full price and the "stores," and which represents nearly all your profit.

As an instance I may mention that in an advertisement in the price list of the Sussex Drug Store Company a letter is given by the Liquor Carnis Company, according to which the drug stores agree to charge full prices for the Liquor carnis; and yet in the price list itself the article is quoted four cents under full price.

A new and delicate reaction for tartaric acid has been published by E. Mohler. A solution of resorcin in strong sulphuric acid (about 1 per cent of resorcin is employed) is added to the suspected liquid and heated. If only a trace, such as $\frac{1}{100}$ Mgm., of the acid be present, a reddish violet coloration is produced. Neither citric, benzoic, succinic, nor malic acid reacts in this manner. Nitric and nitrous acids, also their salts, must be absent, as they yield a bluish color with the resorcin reagent. It has recently been recommended that the reverse method should be used to distinguish resorcin, but the principal objection is that the coloration is destroyed by dilution, whilst the charring of the tartaric acid is misleading.

From the first of the present month the methylated spirit, which is permitted to be retailed free of duty by the inland revenue, will contain 0.375 per cent of mineral naphtha in addition to the present proportion of 10 per cent of wood naphtha. The principal feature of the new addition is that it renders the commercial methylated spirit milky when mixed with water, otherwise the addition is too small to be noticeable. The old methylated spirit containing only wood naphtha is allowed to be used for commercial purposes, but is not to be sold to the public in that state.

The classical researches of Podwyssotzki on the constituents of podophyllum rhizome have just been supplemented by Kürsten (*Archiv. Pharm.*). The method of preparing podophyllotoxin was followed carefully, but the product obtained was not constant in composition. It is obtained by extracting the coarsely powdered rhizome with petroleum ether to eliminate fatty matter. The drug is air-dried and extracted with chloroform until a colorless liquid is obtained. Distilling off the chloroform leaves a resinous mass which, when dry, is extracted with benzin, filtered, and the filtrate allowed to stand for several days. Prismatic crystals are thus obtained, which may be further purified by washing with 50-per-cent alcohol, next with ether, and finally recrystallizing from boiling benzin. The product occurs in long prisms having a melting point of about 95° C. It is soluble in cold water about 1 in 720, slightly more soluble in hot, only slightly soluble in ether, but easily in boiling benzin, absolute alcohol, and acetone. With concentrated sulphuric acid the prisms give red coloration, gradually becoming violet. Other mineral acids produce the red color. When oxidized with permanganate in alkaline solution, podophyllic acid is obtained. This acid gives a characteristic precipitate with cupric acetate. On heating podophyllotoxin with aqueous ammonia, picropodophyllin is produced. It has a melting point of 227° C., and is less soluble in water and alcohol than podophyllotoxin.

London Market Report.

MINCING LANE, September 10th, 1891.

SALES generally during the last month have been very quiet and prices have shown considerable weakness. The various soda compounds are remarkably firm, and Syndicate prices alone rule, as there are few second-hand lots obtainable. Quinine is selling in parcels of 5,000 ounces at 19½ cents for Brunswick and Mannheim makes, and from the absence of any particular demand it may possibly go still lower. The recent revelations pointed to the actual cost price of quinine to the manufacturers, at the present price of bark, as about 9 cents, so that, unlikely as it seems, it would not be safe to consider the current value as bottom price. The bromine squabble is paralyzing the bromide makers here, who are unable to fill orders until something like a settled price is fixed upon. Opium is very quiet, reports indicating an extraordinary crop. The cinchona auctions here this week were very quiet, although the supply was limited and a fair amount withdrawn.

The following are current prices:

Acid, Carbolic	per lb.,	$0.14	
Citric	"	.38	
Oxalic	"	.07	
Tartaric	"	.27	
Bleaching p'wd'r	per cwt.,	2.06	
Camphor, crude	per lb.,	.28	
Refined	"	.36	
Cream of Tartar,	"	.20	
Cinchona, Calisaya	"	.16	
Copper Sulph.	per cwt.	3.3	
Ergot, Spanish	per lb.,	.36	
Ipecacuanha	"	2.2	
Jalap	"	.34	
Mercury	"	.52	
Mercury, Calomel	per lb.,	$0.74	
Corrosive Subl.,	"	.58	
Precip. red	"	.80	
" white	"	.78	
Opium	per lb.,	1.92 to 2.16	
Oil, aniseed	"	1.5	
cassia	"	.78	
peppermint, H.G.,	per lb.,	3.18	
sassafras	"	.44	
Potash, cyanide	"	.55	
Soda, bicarb	per cwt.,	1.74	
caustic	"	2.20	
crystal	"	.84	

CHICAGO.

GEORGE SCHREINER purchased the pharmacy located at Lincoln and Ashland avenues formerly owned by C. W. Jacob.

MR. HIRSCH purchased the pharmacy at 303 Belmont avenue.

Druggist MEISSNER, of La Porte, Ind., secretary of the Indiana Pharmaceutical Association, visited Chicago recently.

A drug store is to be established in the edifice now in

process of erection at the corner of State and Randolph streets, Chicago, and to be known as the Masonic Temple.

It is understood that another new down-town pharmacy is to be opened by C. L. FELDKAMP.

F. M. GOODMAN succeeds Henry C. C. Maisch as professor of botany and materia medica at the Chicago College of Pharmacy.

DR. WHELPLEY, of St. Louis, and R. J. BROWN, of Leavenworth, Kansas, visited Chicago after the close of the meeting of the Illinois Pharmaceutical Association.

VICTOR BARDONSKI has moved his store from 615 to 638 Noble street.

WILLIAM LENZ has opened a new store at 1997 38th street.

WALTER F. MEYER has purchased the store at 360 Ogden avenue formerly owned by J. G. Woodfill.

B. M. NORTON & Co. have purchased the pharmacy at 239 North State street.

J. J. PIERRON has moved his store from 347 to 345 Fifth avenue.

EUGENE VON HERMANN has purchased the store at 420 26th street, formerly owned by himself, from Arzt & Co.

OSCAR ALEX has moved his store from 51st and Loomis to 48th and Loomis streets.

EUGENE WEBER has purchased the store at 445 North Clark street, formerly owned by C. L. Feldkamp.

The sessions at the two colleges of pharmacy will soon open, the Illinois College about the 1st of October, the Chicago College the 8th of October. Professor C. Lewis Diehl, of Louisville, will deliver the opening address at the latter.

MISSOURI.

THE summer season is over and the druggists of Missouri are well satisfied with the trade that they have enjoyed during the past few months. Crops of all kinds have been fair, so that the farmers are able to pay their bills and buy for cash. Such a condition of affairs always pleases tradesmen, and the druggists come in for their share of the prosperity. Taking all in all, Missouri is not a bad State for druggists; they do not flock in from neighboring States and increase the number and sharpen competition, but the trade seems to hold its own very well.

The Missouri State Pharmaceutical Law, which was originally enacted in 1880, has had a good effect upon the drug business in the State by steadily raising the standard of pharmacy. The law never has been, and is not at present, all that could be desired, but it is a great improvement over no law at all, and the average druggist is very well satisfied with it. Many of those who were opposed to a pharmacy law when it was advocated over ten years ago have entirely changed their minds and are now among the warmest advocates of the enactment.

This is the month for the fall festivities in St. Louis, Kansas City, and St. Joseph. St. Louis has long taken the lead in this respect. With her Exposition, Great Fair, Veiled Prophets Procession, and other attractions, St. Louis manages to attract several hundred thousand visitors to the city every fall. The druggists of the State take advantage of the reduced railroad rates and visit their wholesale house for the purpose of selecting goods. The wholesale druggists prepare for them by ordering in their travelling salesmen, who assist in waiting upon their customers and country visitors.

It is a question with some of the country druggists whether or not it pays to go to the city and order goods by sample in the wholesale house rather than give their bills to the travelling salesmen. They forget all about the question when the attractions of the fall festivities are brought to their notice, and flock to the city with their order books in their pockets. It has become such a habit with the druggists of Missouri that they look forward to the occasion from one year to another. Many of them are accompanied by their wives and children, who enjoy the festivities fully as much as the druggists themselves.

Holiday trade in small places is an annual event of great importance to some of the country druggists. Other druggists in small places refuse to handle holiday goods of any kind, claiming that it does not pay, on account of the loss occasioned by unsalable goods, which are either disposed of at a great sacrifice or held over until the following season. The success of the holiday trade seems to depend, to a great extent, upon the business ability of the druggist. It requires an unusual amount of business tact to buy a well-selected stock of holiday goods, and an equal amount of energy to dispose of them at an advantage. It is not likely that the druggists, as a class, will give up this trade, for new ones seem to take it up as rapidly as old ones discard the holiday business, so that, taking all in all, it holds its own.

The St. Louis College of Pharmacy opens October 12th, while the Kansas City College of Pharmacy commences its fall and winter course about the same date. With these two institutions in a flourishing condition, very few students leave the State to learn the drug business in institutions located elsewhere. Both colleges in Missouri are well prepared to give systematic and advantageous instruction. The St. Louis college is one of the oldest institutions of the kind in the West, and has a faculty whose members are known to the pharmaceutical profession throughout the world. The prospects are good for larger classes at these colleges than ever before.

Ever since the Richardson Drug Company lost their entire stock, three years ago, and went out of business in this city, there have been rumors of the formation of new wholesale drug houses. Up to within a few weeks the Moffitt-West Drug Company was the only one which had materialized. This one was organized a few months after the Richardson Drug Company's fire, and was composed, to a great extent, of former employees of the old company. Within the past few weeks an entirely new drug firm has been incorporated with a capital stock of $150,000; it will be known as the Daugherty-Crouch Drug Company. There are 1,500 shares of stock at a valuation of $100 each. Z. W. Pinker holds 500 shares as trustee and 335 shares in his own name; W. B. Fisse, trustee, holds 400 shares; F. L. Lampel, 125 shares; John Crouch, as trustee 60 shares, and 25 shares in his own name; D. P. Daugherty 10 shares, and as trustee 20 shares; W. Graham, 10 shares. The new firm has leased a large building on 7th street, south of Clark avenue, and expects to be ready for business by October 1st. More than a half-dozen of the members of the firm and employees of this new company resigned positions in the Moffitt-West Drug Company for their new situations. This has caused a general change all around, for a number of the employees of the Meyer Brothers Drug Company have gone to the Moffitt-West Drug Company, while men from the other wholesale houses have also changed around, so that it is difficult, when you meet a wholesale drug man on the street, to tell just where he does belong. However, it will not be long before things adjust themselves and all will be running along smoothly with the wholesale drug trade of St. Louis.

St. Louis drug clerks and druggists have by this time all returned from their summer vacations and settled down to business in earnest. The practice of taking vacations, among both druggists and drug clerks, increases each year, and more clerks and druggists than ever before left the city this year seeking recreation. It seems to have had a very good effect upon them, for every one you meet who has been away looks brighter and seems to be in better spirits on account of his rest. It is quite noticeable that the druggist who takes a vacation and extends the same courtesy to his clerks one year is sure to follow the same practice the next season, so that we can look forward to the time when every drug clerk and druggist will manage to get out of the city for at least a short time each summer.

MICHIGAN.

ONE of the clerks in Brown's Pharmacy has fallen from grace. He was fined $13 by the police justice for embezzlement, the amount of his theft being about $20.

Some Detroit druggists have put in a line of spectacles and eye-glasses made by a certain Eastern firm. The trade in them is not exactly rushing, but it is quite satisfactory, and, owing to the very liberal terms allowed, fairly pro-

fitable. Altogether it makes a welcome addition to the pharmacist's stock, and one which properly belongs to him as much as to the jewelry stores.

The well-known chemist, Mr. H. W. Snow, has returned from his summer outing in Utah.

McFARLAND'S new pharmacy on Michigan avenue is very neat and attractive, and it is to be hoped he will experience a corresponding increase in his trade.

There is at present a vast amount of rot being circulated, not only in the secular but also in the pharmaceutical press throughout the country, on the subject of substitution. The AMERICAN DRUGGIST really seems to be about the only paper on either side which has been able to discuss the subject intelligently and without becoming unduly heated or exhibiting a great degree of mental strabismus. While it is quite proper that the druggist should consider himself a professional man, it is nevertheless true that so long as he keeps a store for the public sale of goods other than physicians' prescriptions, just so long must he be considered, in part at least, a tradesman; and just so long will his business be amenable to the same rules which govern other businesses. The sooner the druggist catches on to this fact the better. It requires a peculiar combination of professional skill with business tact to conduct a drug store successfully; but many druggists imagine the latter to be not only useless but degrading. There is no question but that some proprietary medicines are frauds and their proprietors swindlers; but when a customer calls for Lock's Lung Pills, and the druggist wraps up a box of Cock's Lung Pellets and hands it to him without comment, then there is likewise no question that that druggist is quite as much of a swindler as the patent-medicine man. But what has all this to do with the average retailer? There are tricksters in ali trades, even the ministry has its rascals, and it is absurd to suppose that the drug trade is not furnished with its full quota. But there is not the slightest occasion for every druggist in the land to climb a tree and commence to howl. Why, to read the drug journals of the past month, one would gather the impression that, with the exception of the AMERICAN DRUGGIST and one or two other papers, the entire pharmaceutical press of the country was controlled and published in the interest of a certain manufacturing concern in Detroit. Indeed, it sometimes appears as if this whole agitation might be simply a shrewd scheme on the part of this concern to gain an immense amount of free advertising which, if paid for at regular rates, would cost nearly a million dollars. This is a favorite method of advertising with theatrical stars, who have alleged quarrels with their managers, the details of which are published broadcast and eagerly swallowed by the fond, sympathetic public. But whatever the result may be, the retail druggist is all right, and cannot but regard the struggle with satisfaction. Let the patents and the anti-patents, like the monkey and the parrot, fight it out among themselves to their hearts' content; but let the retailer beware of being made the catspaw of any class of proprietors, patent or not patent. And remember that the man who keeps furthest away from the fight is the least likely to get hit with a brick.

CANADA.

REPORTS from various parts of the Dominion represent trade as picking up. Collections are not much more easily made than they have been all summer, but paper is more readily accepted. As a man's capital in Canada is represented, in the majority of instances, by the talismanic combination of letters, I O U, this ready renewal of acceptances is productive of a greater feeling of security. Speaking of this promissory-note business some weeks ago, one of our "solid" men likened it to the fleas that vex mankind, having lesser fleas to bite them (not being a devotee to the Ars Poetica, I have preserved only the sense of the quotation). He is right, and one realizes it when a large firm gets in difficulties, and the smaller card houses come tumbling down in rapid succession. In point of fact, the system amounts to much the same thing that you have to so great an extent over there—a monopoly in a line of trade, with this exception, the employees, instead of all being gathered together under one roof, are scattered around the country.

This, as you are no doubt aware, is the beginning of the season for agricultural exhibitions, the harvest time of the Punch-and-Judy man, the pink lemonade and hokey-pokey, double-jointed-peanut man, the Circassian lady and the sword swallower, the five-legged calf and the man-headed cow. Now the horny-handed Hank dons his three-dollar-and-a-quarter serge suit and a fresh paper collar, and takes Mehitabel to see the prize cattle and the hand reared mangels. Now the young lady with a nickel's worth of tutti-frutti in her cheek presides at the piano in the main building, and while grinding out the "Mocking-Bird" with impromptu variations, makes eyes at the "gent" in the embroidered smoking cap with gold tassel who extols the virtues of "de-fines'-preparation-in-de-world - for-removin' - paint-oil - tar - grease-an'-other stains"; or the fly individual who, though apparently not a proselyte himself, endeavors, by paper fans and sundry allusions to the excellence of his wares, to convert the public to the use of his particular brand of toilet and laundry soaps. Now Messrs. Sharpe and Gullim have prepared monster dummy representations of their shoedressing and Spanish blacking, their metal polish and razor paste, which they have entered and advertise as a display of chemicals. Yes! we have with us the season when village sewing circles are broken up, when second cousins are estranged, when there is a general transfer of "accounts," all the result of an unwise awarding of the best prize for canned pears or wool mats to a worthy but unpopular villager.

I spent a few hours at the Industrial Exhibition in Toronto this week. As an advertising medium it is quite up to the exhibitions of former years, but for instruction or amusement (outside of its being an excellent place for the study of mankind in the concrete) I should prefer the primary classes of the kindergarten. There are several exhibits of interest to druggists there; but as this page is not devoted to advertisements, I am not at liberty to detail the merits or demerits of the respective displays. However, amongst others of note, I saw the rotund little figure of Mr. Beck presiding as guardian angel over the exhibit of Messrs. Whitall, Tatum & Co. The Pure Gold Manufacturing Company also show considerable ability to keep up with the procession by calling attention to their baking powders, extracts, and spices through the medium of a phonograph with a large trumpet attached. A patent medicine firm go them one better, and have an authentic testimonial at their booth in the shape of a man who was supposed to have been cured, after being given up by the physicians, through the agency of their remedies. This chap did himself a good turn in getting better just about the time he was taking these remedies, as he is acting as an itinerant advertisement for the company. I have seen him on several market days in his native town hawking his wares where farmers most do congregate. (By the way, the man is known as the Blanktown Miracle.) There are four or five other patent medicine and drug houses represented there by monster crystals and metallic trees under bell jars, and samples of crude drugs used in the preparation of their specialties. An electric belt is shown for which, judging by the pamphlets, are claimed almost all the powers ascribed by Lytton to his magic force, "vril." Take it altogether, perhaps it does some good, for the greater knowledge people have of what they lack the greater demand will there be for supplies.

I see that the public analyst has been after the Montreal druggists with a sharp stick for selling Spiritus ætheris nitrosi not up to the standard. One sample indeed yielded seven volumes of gas, but the majority of them ran low, while one gave up no gas at all. It is a pity something cannot be done to prevent the rapid elimination of gas from this spirit. In large establishments where there are lots of the spirit sold, they can manage to keep it at or near the standard, but where the suburban druggist only sells a pound or so a year he has no show at all.

While waiting for a brother pill man to come for a sail one day not long ago, a tiny girl came into the store and, standing on her tiptoes, dropped five cents on the counter, and asked for the worth of it in blue ointment, finishing up with the remark in all the *naïveté* of childhood, "Please, ma says it ain't for us."